# 2019 Fugitive Dust Report

# Sandy Creek Energy Station

# Riesel, Texas

## Facility Background

Sandy Creek is a nominal 900-megawatt (MW) super-critical electrical generating unit (EGU) that burns low sulfur sub-bituminous coal brought in by train from the Powder River Basin. The unit is equipped with one pulverized coal (PC) boiler, one multiple shell condensing steam turbine generator, multiple steam surface condensers, one multiple cell mechanical draft cooling tower, one auxiliary boiler, and various auxiliary equipment. emissions control equipment includes a selective catalytic reduction (SCR) to control nitrogen oxides (NOx), a dry flue-gas desulfurization (FGD) system, a baghouse and activated carbon injection (ACI) system.

Non-combustible residues (bottom ash) fall from the PC boiler into quench water and are continuously removed using an enclosed conveyor system and conveyed from a chute onto a concrete pad surrounded on three sides with a concrete enclosure. Ash from the PC boiler's economizer is mixed with this bottom ash. Combustible residues from the boiler, as well as residues from emissions control equipment, are referred to as fly ash in the Facility Plan. The fly ash is conveyed via a closed system to a silo. For on-site disposal, a pug mill adds moisture, and the moistened ash is dropped from two silo chutes and loaded into open-topped trucks which transfer it to the Facility's on-site CCR landfill. For off-site sales, the fly ash is loaded dry from the silo via an enclosed, telescoping system, into enclosed tank trucks for transport off the Facility property. A small portion of pre-conditioned fly ash also drops out through the FGD onto a concrete pad and is loaded into trucks via a front-end loader for disposal at the CCR landfill.

Bottom ash and unsold fly ash, as well as other Facility-generated waste types (including cooling water screenings, waste coal, coal mill rejects, water treatment cake material, and waste lime residues) are landfilled at the CCR landfill. An unpaved road approximately 0.15 miles in length leads from the Facility to the CCR landfill. At this landfill, the fly ash and bottom ash are compacted for storage.

SCES uses a water truck equipped with pressurized directional sprays to suppress dust on the paved and unpaved roads as well as the active areas of the landfill.

## Introduction:

In accordance with the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Part 257, subpart §257.80(c). The fugitive dust inspection and report include actions taken to control Coal Combustion Residual fugitive dust, citizens' complaints, and any corrective measures taken during the year. For the control of fugitive dust, the report

is broken into four main operational areas as outlined in the Fugitive Dust Control Plan (Rev2 – December 2018).

## General Fugitive Dust Control Measures:

The boiler and a large portion of the equipment used to combust coal to generate electricity are located inside a structure that encloses nine floors of the boiler. This structure reduces fugitive emissions generated through the transfer of economizer ash as well as bottom ash. The portions of the facility that are not enclosed utilize barriers, drop chutes, and water to reduce the possible production of fugitive dust from the four operational areas. Housekeeping is also an important component in reducing the amount of ash that can produce fugitive dust. The Fugitive Dust Control Plan is broken up into the following four areas:

- **Inspection of Bottom Ash Fugitive Dust Control Measures**
- **Inspection of Fly Ash Fugitive Dust Control Measures**
- **Inspection of Ash Transport Fugitive Dust Control Measures**
- **Inspection of CCR Landfill Fugitive Dust Control Measures**

## Inspection of Bottom Ash Fugitive Dust Control Measures

The bottom ash generated from the combustion of sub-bituminous coal in the boiler at Sandy Creek consists of the heavy ash materials that accumulate in the economizer area of the boiler and the bottom ash conveyance quench water system at the base of the boiler. The economizer ash is moved to the bottom ash collection area by a series of screws and dropped onto the wet ash of the ash quench system before being conveyed to the outside storage area. Both ash types will be referred to as bottom ash for this report. The management practices used by Sandy Creek to mitigate the accumulation of bottom ash to reduce the production of fugitive dust are as follows:

- Bottom ash residues are generated inside the structure that encloses most of the boiler.
- The bottom ash is wetted prior to deposition onto the outside storage area.
- The bottom ash consists of larger particle sizes that are less prone to the creation of fugitive dust.
- The outside storage area has a concrete floor with three concreate walls that are approximately twenty feet high. The floor of the area has grating that routes stormwater collected in the deposition area to the low flow wastewater treatment pond.
- The bottom ash is removed and transported to the on-site landfill before the moisture is allowed to dissipate.
- The outside storage area is cleaned on a regular basis to further mitigate the formation of fugitive ash.

### Assessment of Effectiveness

During 2019, no third-party complaints were received regarding the generation of fugitive dust originating from the bottom ash collection area. On-site personnel working in the area did not report any fugitive dust problems. The annual inspection conducted by a third-party engineer noted no fugitive dust emissions coming from the bottom ash area. No regulatory inspections were performed during 2019.

## Inspection of Fly Ash Fugitive Dust Control Measures

The fly ash generated from the combustion of sub-bituminous coal in the boiler at Sandy Creek consists of the light ash materials that are collected by the baghouse and transported utilizing supplied air through an enclosed system to the fly ash storage silo. A small portion, consisting of less than 5% of the total ash production, is deposited onto a concrete floor at the base of the Spray Dry Absorption (SDA) system used for the removal of Sulfur Dioxide emissions.

The management practices used by Sandy Creek to mitigate the accumulation of fly ash to reduce the production of fugitive dust are as follows:

- The transport system for fly ash is entirely enclosed apart from the SDA system. The gas path takes the fly ash through the baghouse which captures approximately 99% of the fly ash in the gas stream. The baghouse is monitored continuously using an opacity monitor as well as broken bag indicators. Failures of the baghouse are rare, but when a failure occurs the problem area is shut down. The fly ash is cleaned up as soon as possible to mitigate fugitive dust. During cleanup, when possible, water sprays are used to wet the ash.
- The fly ash collected in the baghouse is then transported by an enclosed system using supplied air to the fly ash silo. The silo is equipped with a dual filter system that utilizes differential pressure as a warning that the filter system may be failing. Failures of the filter system are rare, but the system is designed so each side can be repaired with the other still in operation so the silo should never be without filtration. Any spilled fly ash is cleaned up as soon as possible to mitigate fugitive dust. During cleanup, when possible, water sprays are used to wet the ash.
- The drop point at the base of the SDA is under negative pressure. As chunks of fly ash drop to the concrete floor, the lighter fly ash is re-entrained and transported to the baghouse for removal.
- The fly ash that does accumulate at the base of the SDA is removed on a regular basis by a front-end loader and open top dump truck. Water sprays are utilized to wet the fly ash during the loading process.
- The SDA drop point area is cleaned at a regular interval to reduce the chance of wind picking up any spilled fly ash.

- The fly ash in the silo is transferred by two separate methods:
    - The transfer of fly ash for transport to the on-site landfill is wetted in a pug mill prior to drop into an open top truck. The wetting of the fly ash reduces the formation of fugitive dust emissions while the ash is dropped or transported. An observer watches the filling process to ensure the trucks are not over-filled during the transfer of fly ash from the pug mill to the open trucks.
    - The transfer of fly ash for transport off-site is achieved with a drop chute that forms a seal with a closed tank truck. The fly ash is dry and is not routed through the pug mill. Fugitive fly ash is re-entrained in the chute system and routed to the dust collection system at the top of the silo.
- Fly ash that accumulates at the base of the fly ash silo is required to be cleaned up after the loading of each truck (tank and open top). This requirement is found in the site Multisector General Permit TXR050000, Section O.

**Assessment of Effectiveness**

No formal complaints were received regarding the area below the SDA drop point or Fly Ash silo during 2019. Windscreens were installed in late 2019 to reduce wind turbulence through the SDA area. The windscreens are working well at the time of this report. The annual third-party inspection was completed and found the control measure currently in place were effective. No other regulatory inspections were conducted of this area during 2019.

## Inspection of Ash Transport Fugitive Dust Control

Bottom ash and fly ash are transported to the on-site landfill by a 35-yard, high walled, open top dump truck. Fly ash is also transported off-site. The ash transported off-site is transported in a closed tank truck. The management practices used by Sandy Creek to mitigate the accumulation of bottom ash and fly ash to reduce the production of fugitive dust are as follows:

- Bottom ash is moved to the open top trucks utilizing a front-end loader. The ash is transferred while the ash still has moisture to reduce the formation of fugitive dust. The particle size of the bottom ash is also large and reduces the formation of fugitive dust.
- As discussed above, the transfer of fly ash from the SDA area utilizes a front-end loader to move the fly ash accumulated below the SDA to the open top truck. Water is utilized to reduce the formation of fugitive dust during loading operations.
- From the fly ash silo, ash transported to the landfill is wetted utilizing a pug mill before being dropped into a waiting open top truck. The pug mill reduces the formation of fugitive dust formation and transport. A spotter also ensures the trucks are not overfilled during the transfer process.

- From the fly ash silo, ash transported off-site is transferred dry through a drop chute system that forms a seal with a closed tank truck. The chute is equipped with a system that transports fugitive fly ash back into the silo.
    - Operators work to ensure the tank trucks are not overfilled by timing the drop of ash.
    - A small amount of fly ash does accumulate at the point where the seal is made with the tank opening. Following the completion of the fill cycle the tank trucks then move to the scales to be weighed and then move to a gantry platform to close the tank opening and wash the residue ash from the top of the tank truck into a small pit collection area.
        - The water in the small pit is cleaned out as needed but is often cleaned daily due to the accumulation of contact water. The pit is not allowed the dry out and is not allowed to overflow the sides.
    - If a truck is overfilled the truck will back into a designated area and hook into a hose that removes the excess ash to the gas stream leading into the unit baghouse. Small spills associated with disengaging the hose are cleaned up immediately as required by the multisector stormwater permit.
- The road to the landfill is periodically graded and a speed limit of 10 mph is enforced.
- During dry conditions, a water truck is utilized to water the landfill road and active working face of the landfill to reduce the formation of fugitive emissions.

**Assessment of Effectiveness**

No formal complaints were received regarding the transport of ash during 2019. The annual third-party inspection was completed and found the control measure currently in place were effective. No other regulatory inspections were conducted of this area during 2019.

## Inspection of CCR Landfill Fugitive Dust Control

The management practices used by Sandy Creek to mitigate the production of fugitive dust in the landfill are as follows:

- Prior to placement of the ash in the landfill it is conditioned with water as explained through the above processes.
- After the ash has been deposited into the working face of the landfill, a compactor is used to compact the ash.
- The active area of the landfill is also closely controlled due to New Source Review Permit 70861, Condition 25. This requirement restricts the landfill to only have five acres of the landfill open at any time. The active working area of the landfill is restricted to one acre.

- A water truck is also utilized to water the compacted areas of the landfill. Once the wetted fly ash dries, the ash forms a hard crust that further minimizes the potential for the formation of fugitive dust.
- Temporary cover is utilized on inactive portions of the landfill to reduce wind erosion.
- All plant roads are watered on a regular basis during dry periods.

**Assessment of Effectiveness**

No formal complaints were received regarding the transport of ash during 2019. The annual third-party inspection was completed and found the control measure currently in place were effective. No other regulatory inspections were conducted of this area during 2019.

## Summary of Citizen Complaints

There were no citizen complaints associated with or related to Coal Combustion Residual dust during 2019. The last complaint related to dust was received on October 2, 2018, regarding dust coming from the off-site transport of ash in the tank trucks. A wash station with collection pit was installed and is utilized by each individual tank truck driver before leaving the site.

## Corrective Actions

Following the citizen complaint in late 2018, a wash station was installed in early 2019 to allow truck drivers to wash off the small amount of fly ash that accumulated at the tank opening during transfer of fly ash through the fly ash silo chute.

During the 2019 year several site personnel had been reporting dusting originating from the SDA drop point during high wind conditions. In late 2019 a project was initiated to install wind fence to reduce the velocity of wind through the SDA area. This project should be completed by the end of December 2019 or early January 2020.